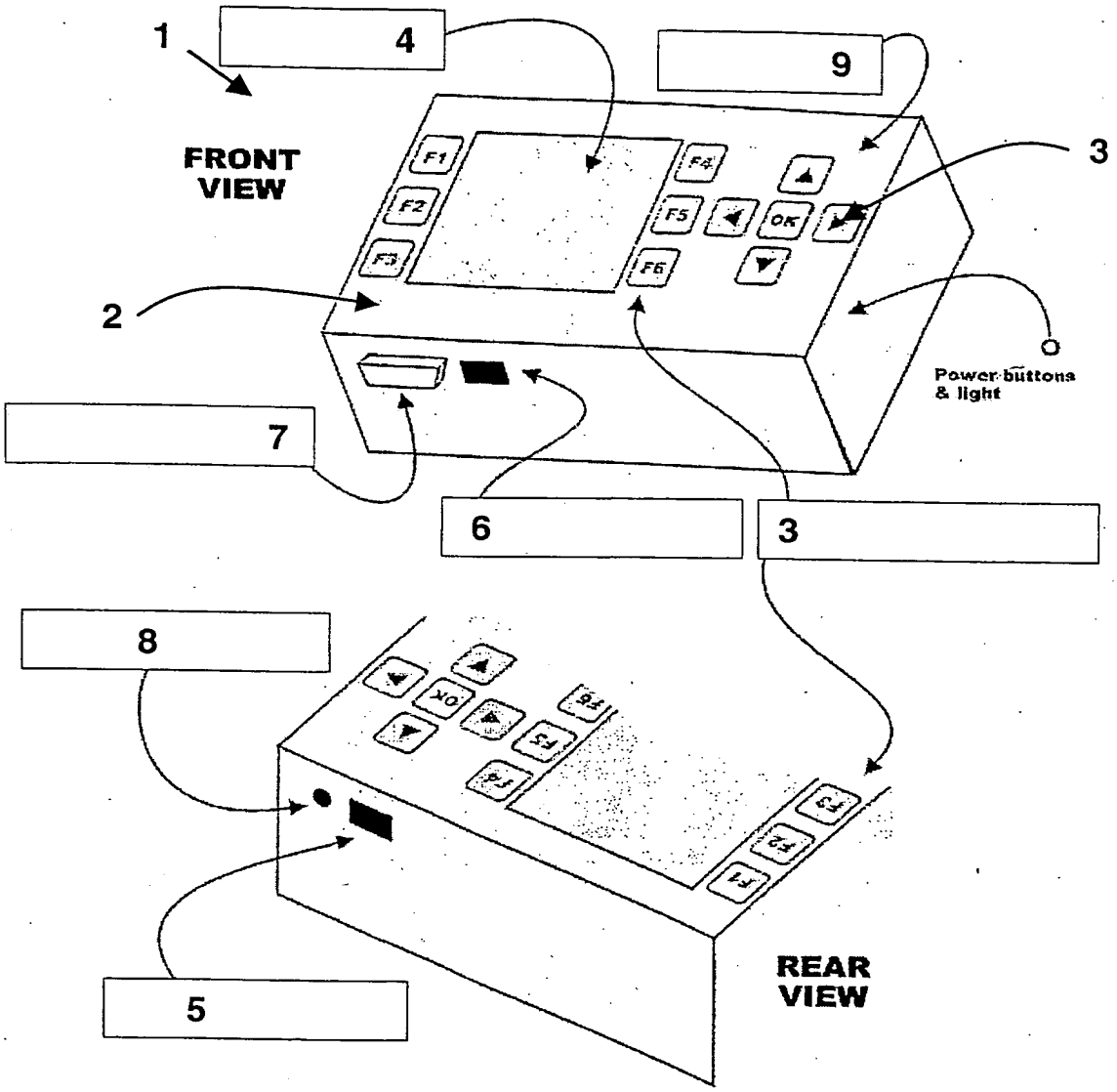
Figure 1


1
4
9
FRONT VIEW
3
F1
F2
F3
F4
F5
F6
OK
2
Power buttons & light
7
6
3
8
5
REAR VIEW

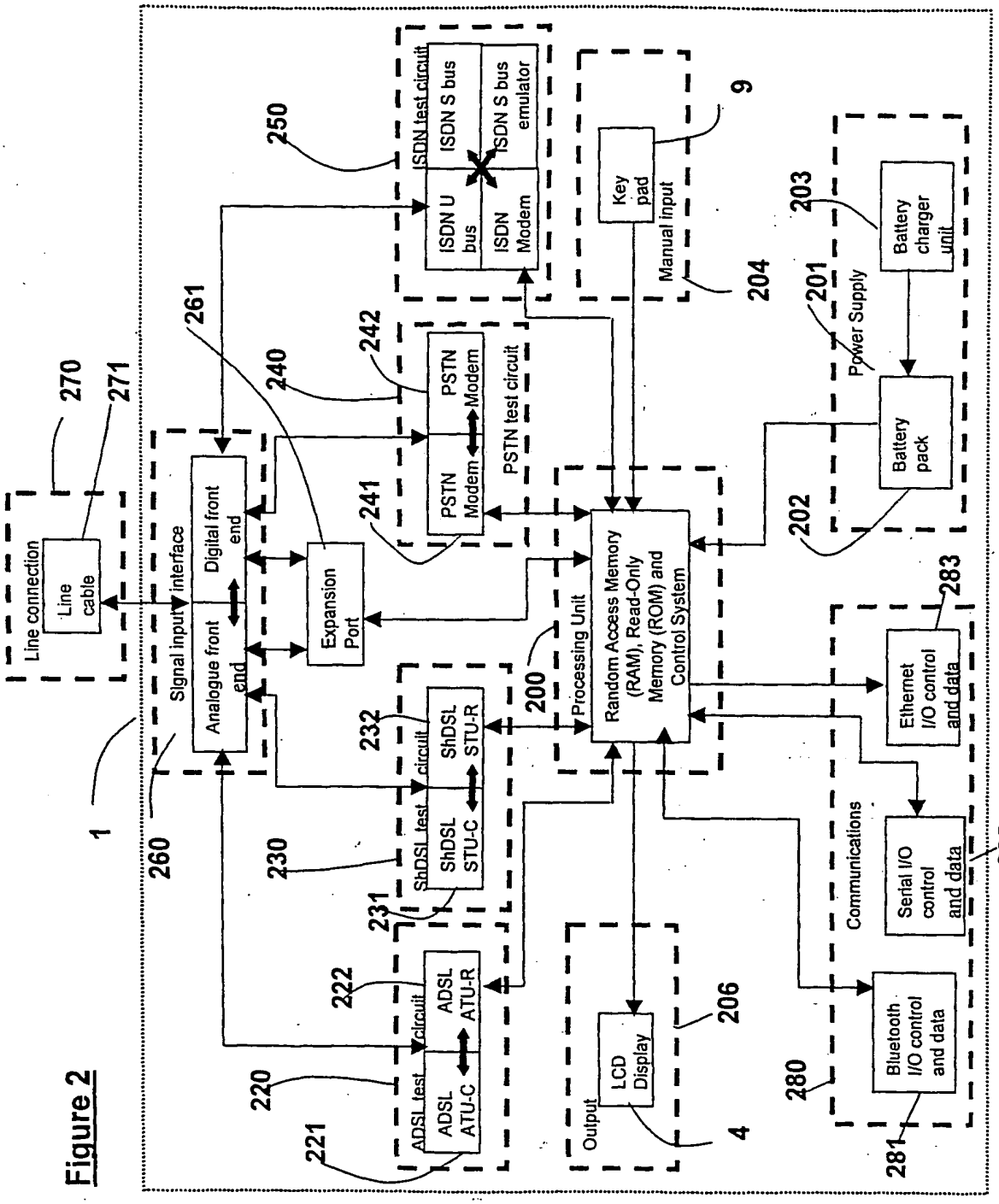

Line connection
Line cable
Signal input/ interface
Analogue front end
Digital front end
Expansion Port
Processing Unit
Random Access Memory (RAM), Read-Only Memory (ROM) and Control System
PSTN test circuit
PSTN Modem
PSTN Modem
ISDN test circuit
ISDN U bus
ISDN Modem
ISDN S bus
ISDN S bus emulator
ShDSL test circuit
ShDSL STU-C
ShDSL STU-R
ADSL test circuit
ADSL ATU-C
ADSL ATU-R
Key pad
Manual input
Power Supply
Battery charger unit
Battery pack
Communications
Ethernet I/O control and data
Serial I/O control and data
Bluetooth I/O control and data
Output
LCD Display
1
4
9
200
201
202
203
204
206
220
221
222
230
231
232
240
241
242
250
260
261
270
271
280
281
282
283

Figure 2

Figure 3

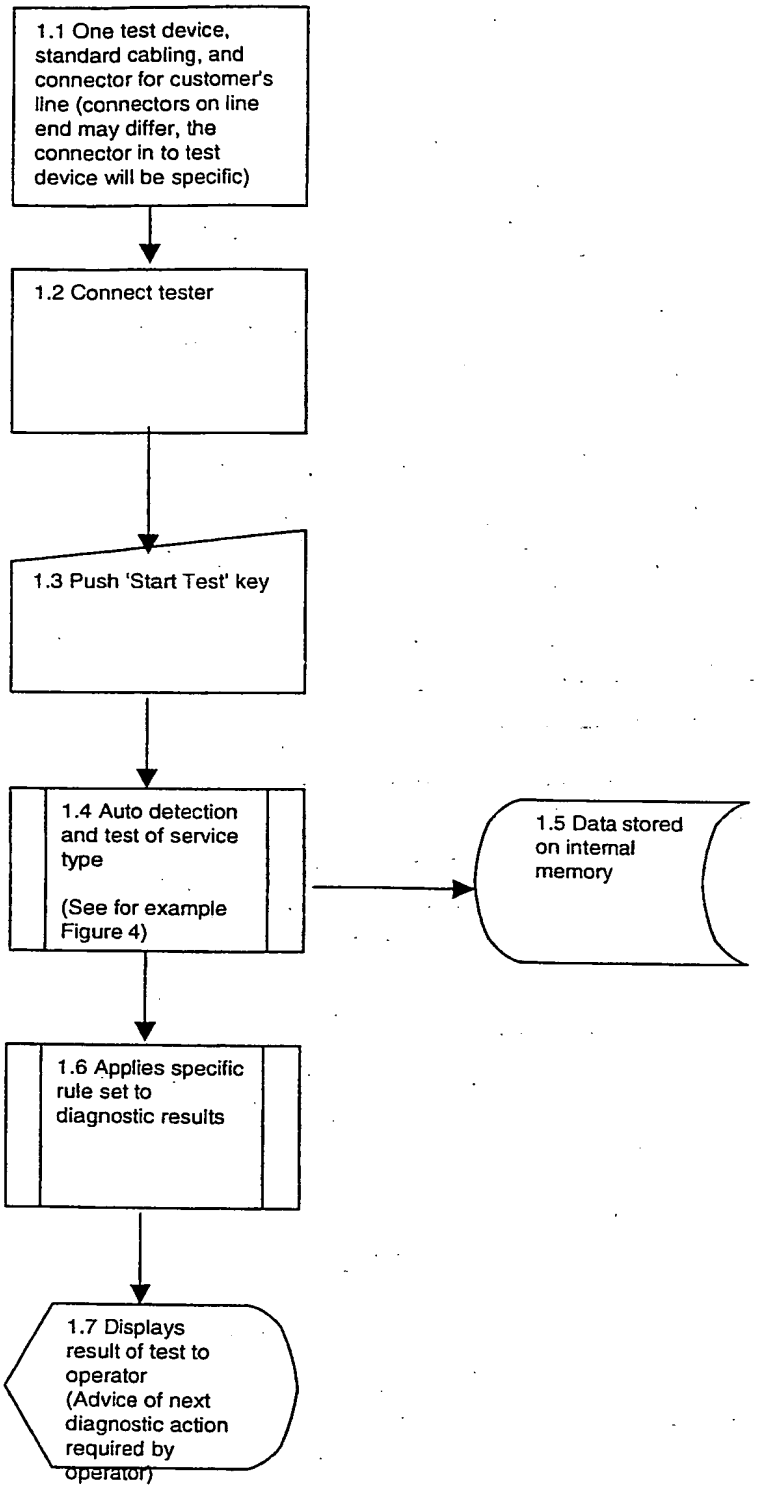

1.1 One test device, standard cabling, and connector for customer's line (connectors on line end may differ, the connector in to test device will be specific)
1.2 Connect tester
1.3 Push 'Start Test' key
1.4 Auto detection and test of service type
(See for example Figure 4)
1.5 Data stored on internal memory
1.6 Applies specific rule set to diagnostic results
1.7 Displays result of test to operator (Advice of next diagnostic action required by operator)

Figure 4

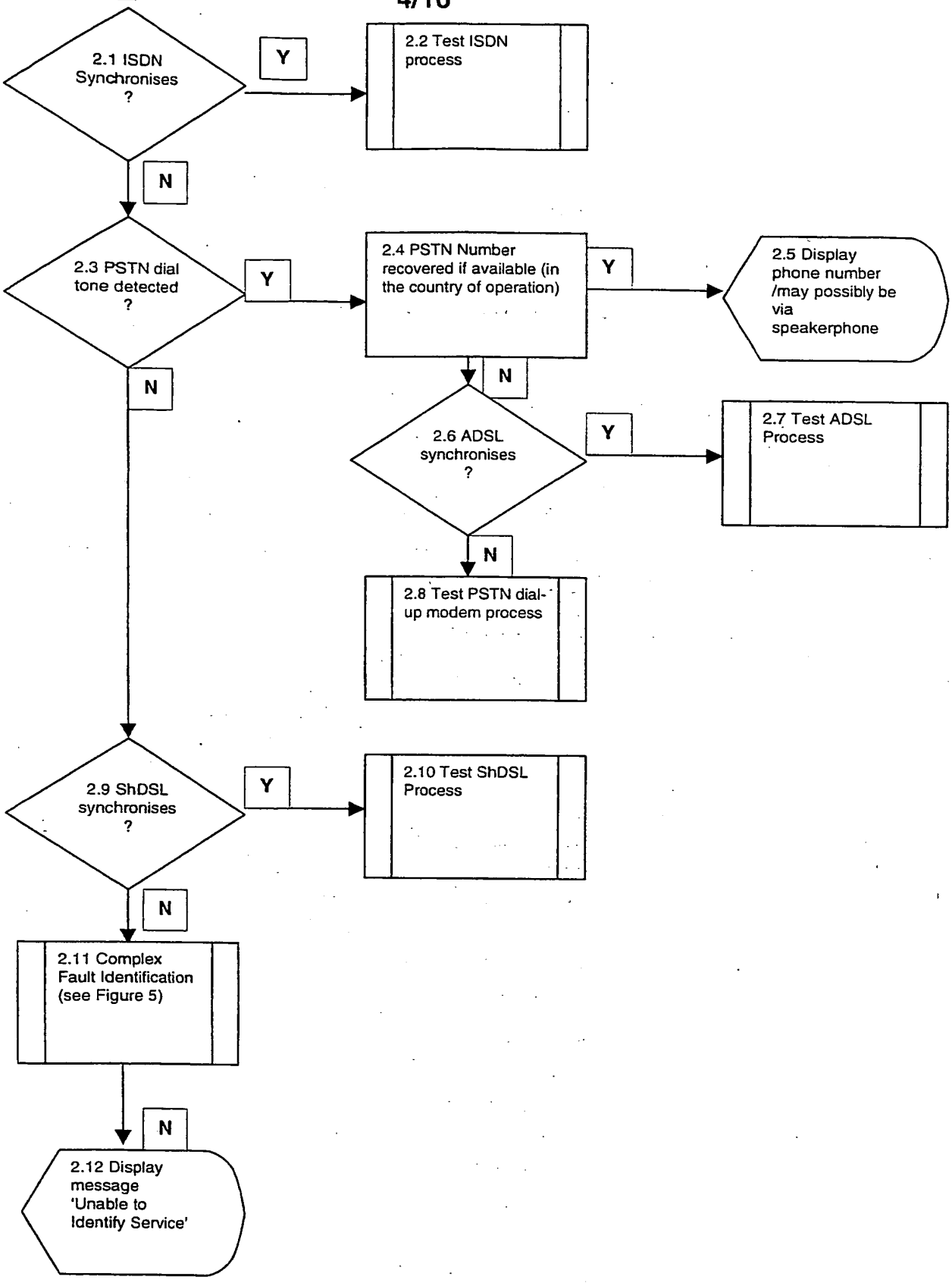

2.1 ISDN Synchronises ?
Y
2.2 Test ISDN process
N
2.3 PSTN dial tone detected ?
Y
2.4 PSTN Number recovered if available (in the country of operation)
Y
2.5 Display phone number /may possibly be via speakerphone
N
N
2.6 ADSL synchronises ?
Y
2.7 Test ADSL Process
N
2.8 Test PSTN dial-up modem process
2.9 ShDSL synchronises ?
Y
2.10 Test ShDSL Process
N
2.11 Complex Fault Identification (see Figure 5)
N
2.12 Display message 'Unable to Identify Service'

Figure 5

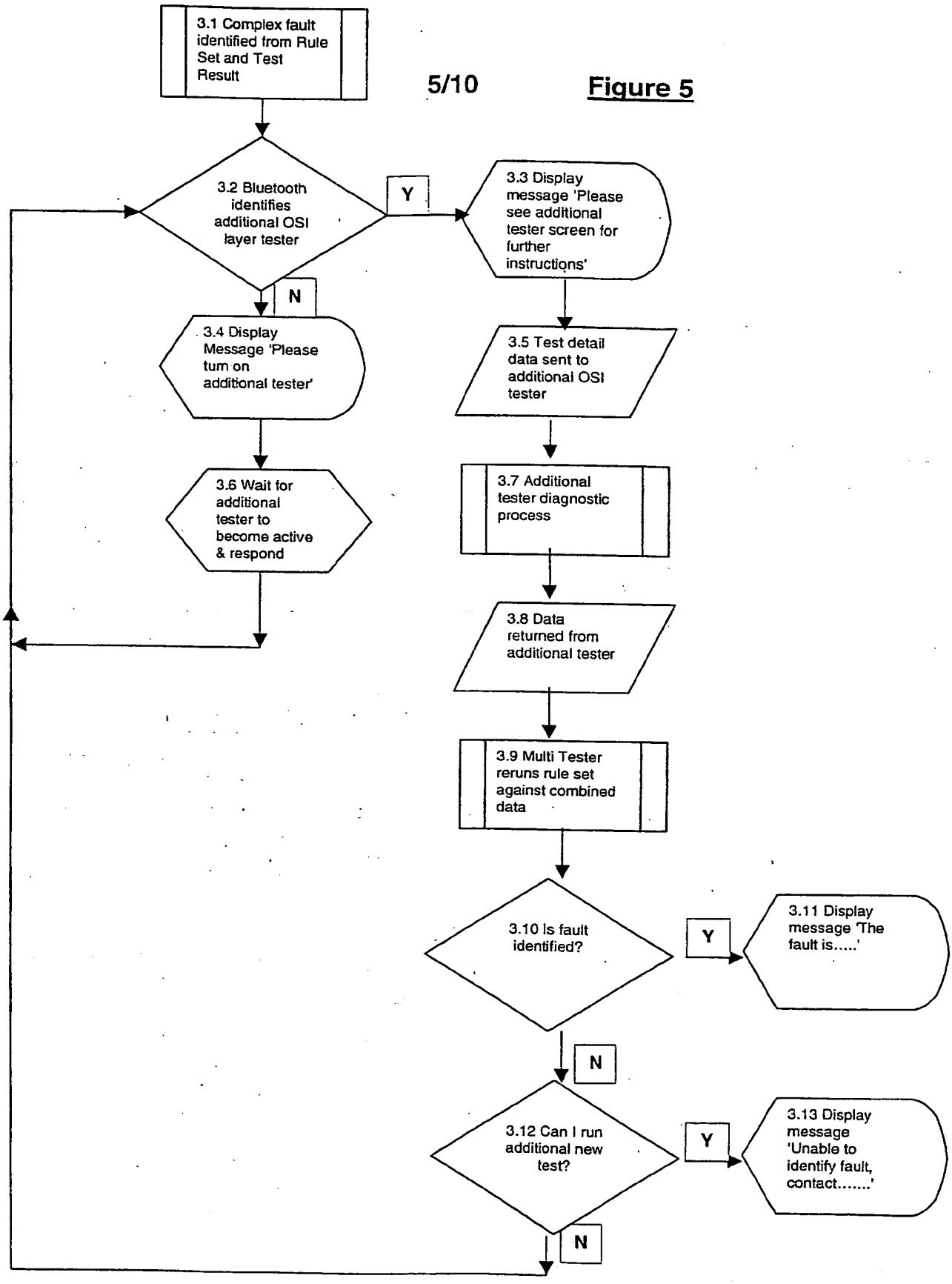

3.1 Complex fault identified from Rule Set and Test Result
3.2 Bluetooth identifies additional OSI layer tester
Y
3.3 Display message 'Please see additional tester screen for further instructions'
N
3.4 Display Message 'Please turn on additional tester'
3.5 Test detail data sent to additional OSI tester
3.6 Wait for additional tester to become active & respond
3.7 Additional tester diagnostic process
3.8 Data returned from additional tester
3.9 Multi Tester reruns rule set against combined data
3.10 Is fault identified?
Y
3.11 Display message 'The fault is.....'
N
3.12 Can I run additional new test?
Y
3.13 Display message 'Unable to identify fault, contact.....'
N

Figure 6a

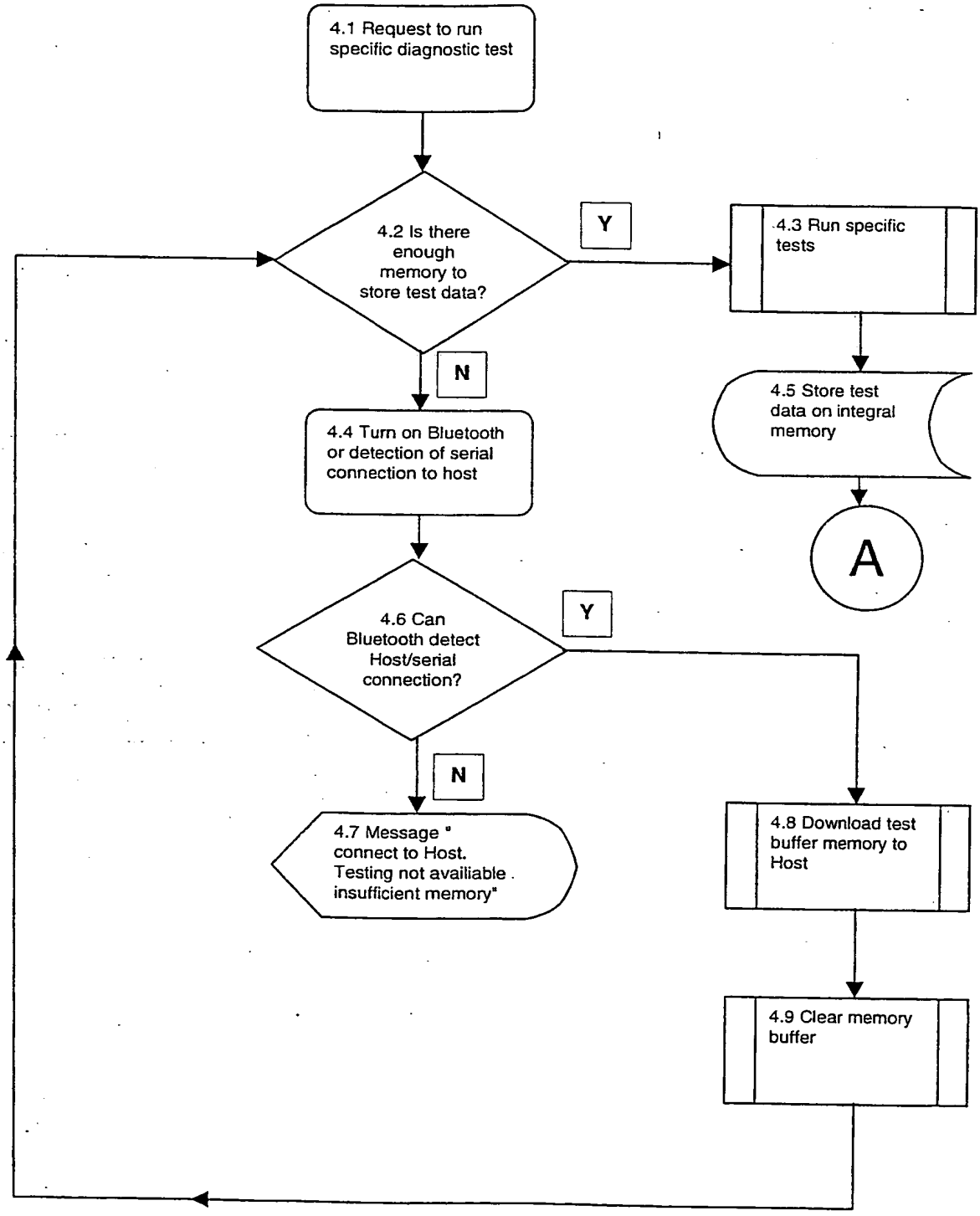

4.1 Request to run specific diagnostic test
4.2 Is there enough memory to store test data?
Y
N
4.3 Run specific tests
4.5 Store test data on integral memory
A
4.4 Turn on Bluetooth or detection of serial connection to host
4.6 Can Bluetooth detect Host/serial connection?
Y
N
4.7 Message " connect to Host. Testing not availiable . insufficient memory"
4.8 Download test buffer memory to Host
4.9 Clear memory buffer

Figure 6b

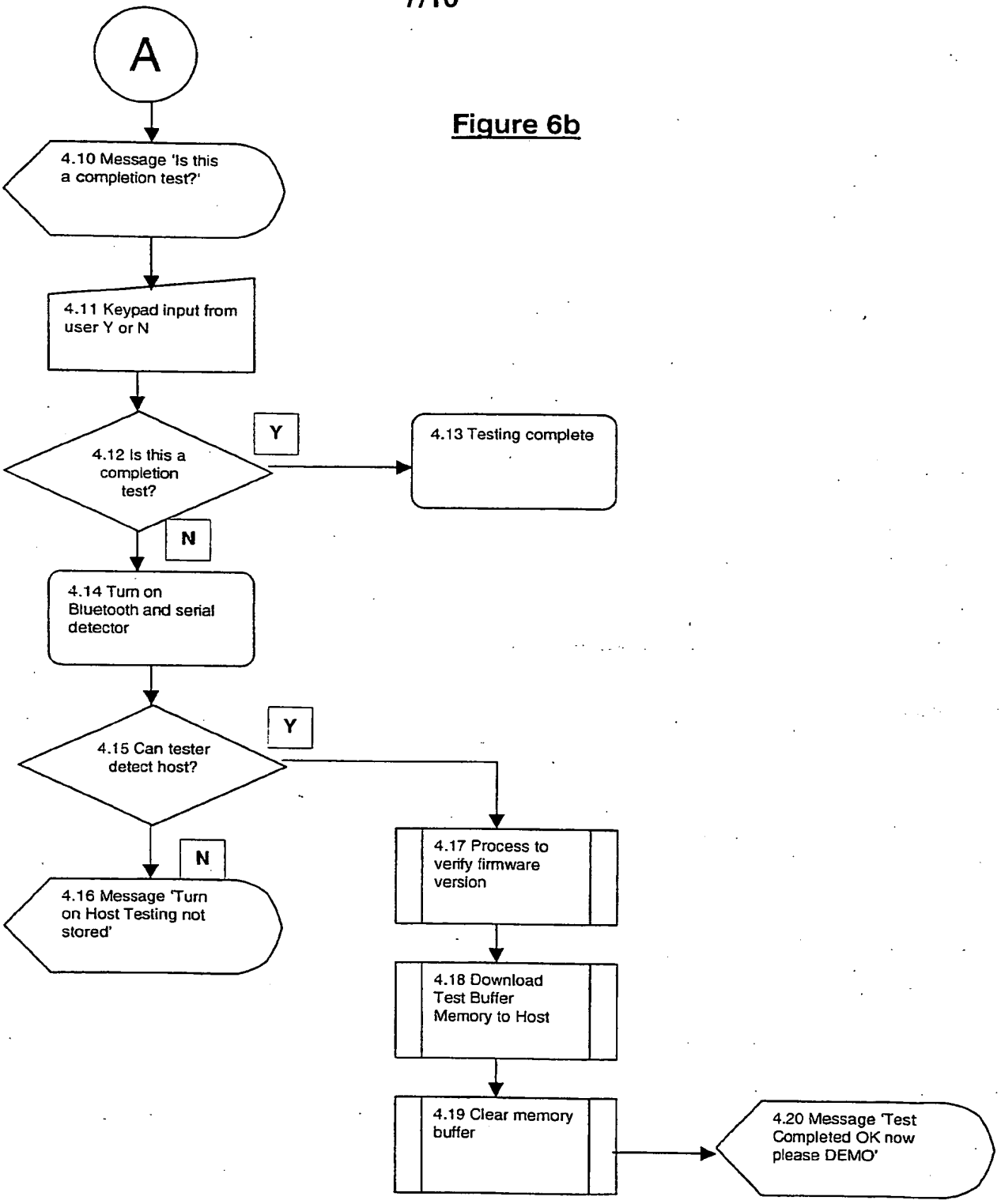

A
4.10 Message 'Is this a completion test?'
4.11 Keypad input from user Y or N
4.12 Is this a completion test?
Y
4.13 Testing complete
N
4.14 Turn on Bluetooth and serial detector
4.15 Can tester detect host?
Y
N
4.16 Message 'Turn on Host Testing not stored'
4.17 Process to verify firmware version
4.18 Download Test Buffer Memory to Host
4.19 Clear memory buffer
4.20 Message 'Test Completed OK now please DEMO'

Figure 7

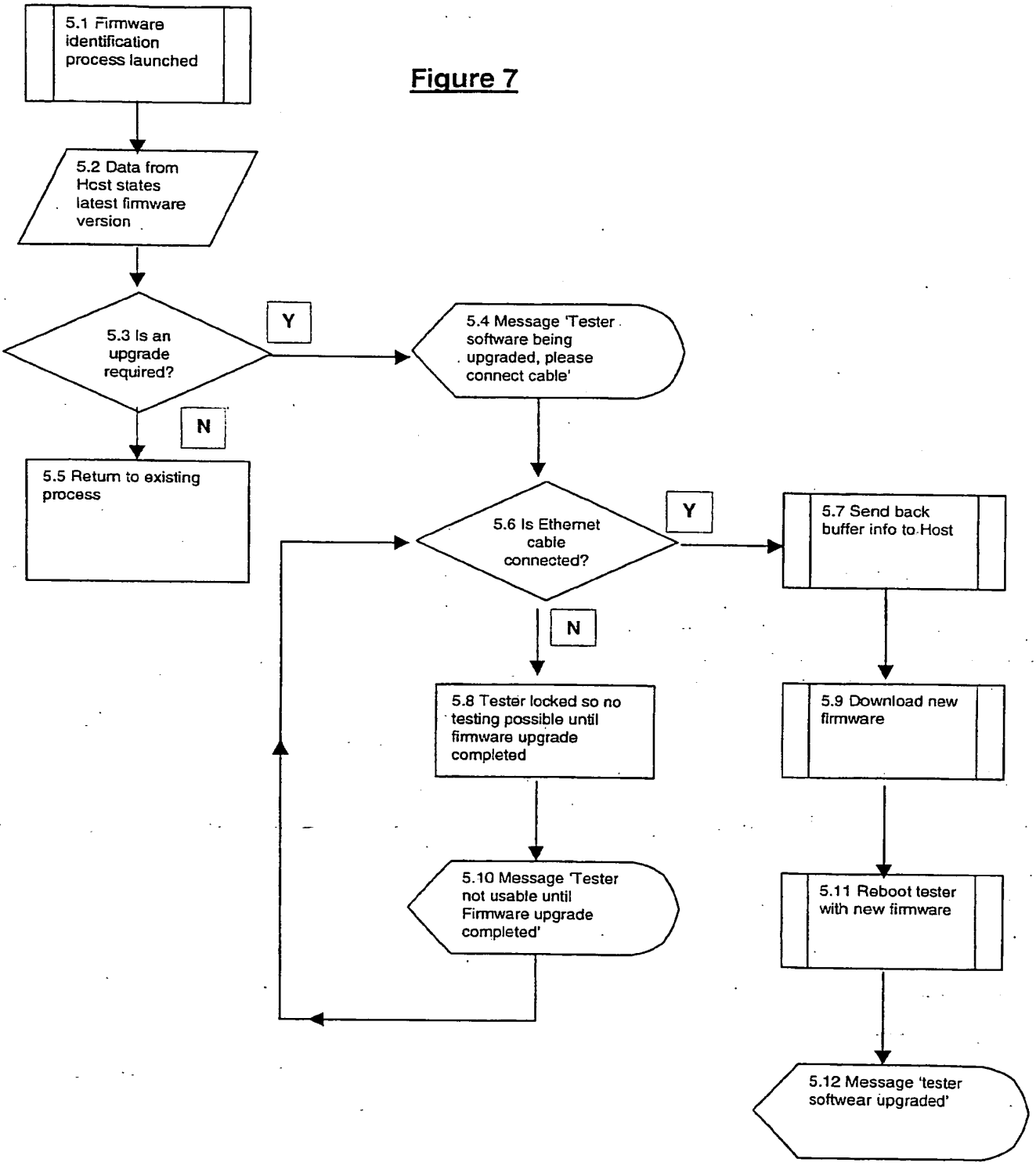

5.1 Firmware identification process launched
5.2 Data from Host states latest firmware version
5.3 Is an upgrade required?
Y
N
5.4 Message 'Tester software being upgraded, please connect cable'
5.5 Return to existing process
5.6 Is Ethernet cable connected?
Y
N
5.7 Send back buffer info to Host
5.8 Tester locked so no testing possible until firmware upgrade completed
5.9 Download new firmware
5.10 Message 'Tester not usable until Firmware upgrade completed'
5.11 Reboot tester with new firmware
5.12 Message 'tester softwear upgraded'

Figure 8

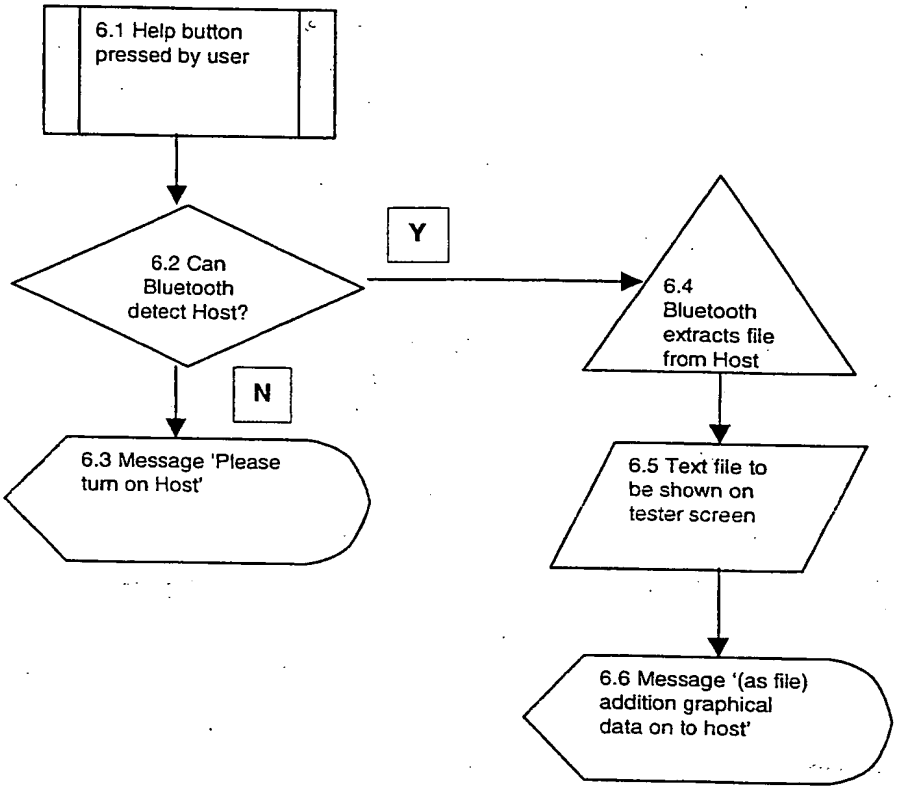
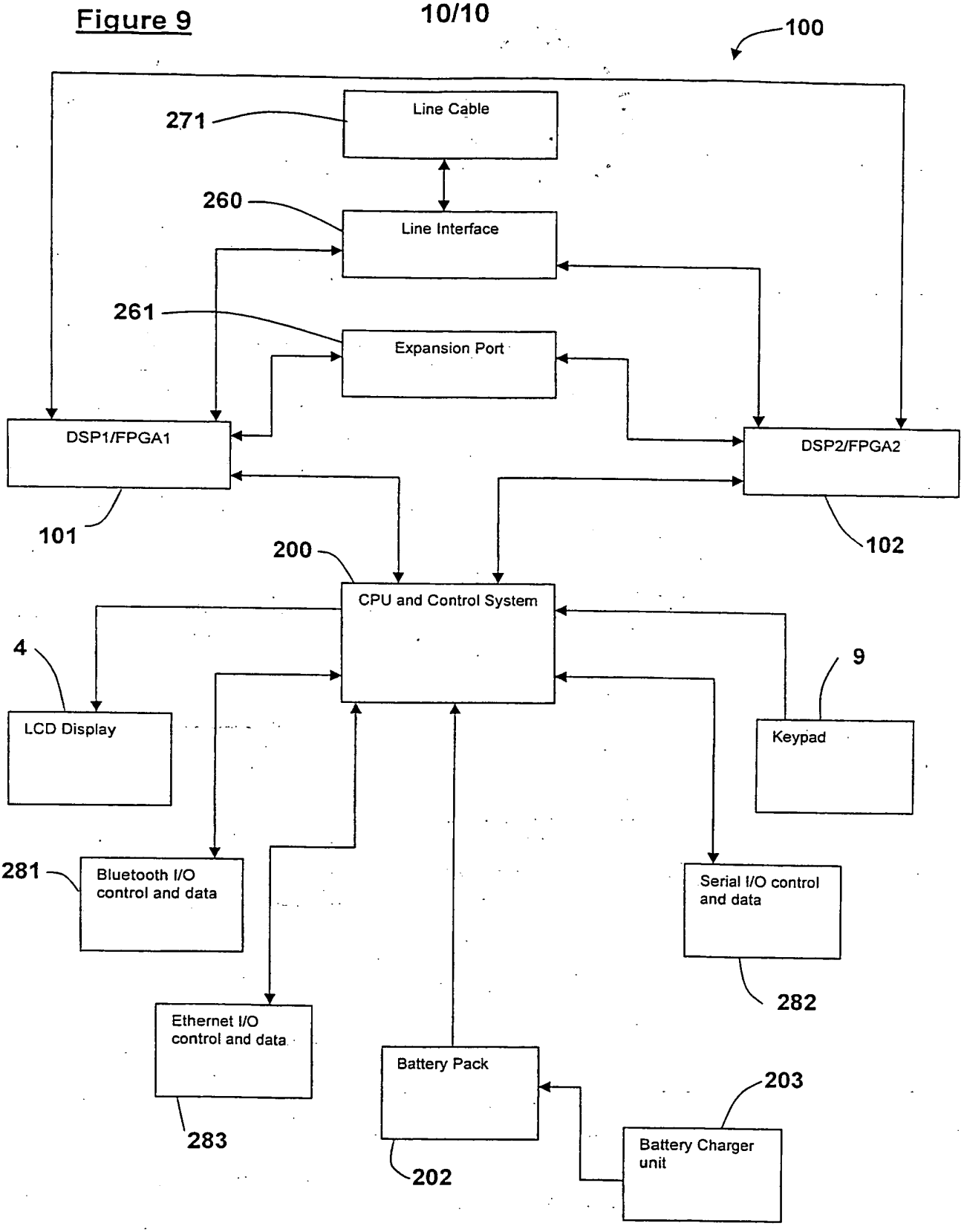

6.1 Help button pressed by user
6.2 Can Bluetooth detect Host?
Y
N
6.3 Message 'Please turn on Host'
6.4 Bluetooth extracts file from Host
6.5 Text file to be shown on tester screen
6.6 Message '(as file) addition graphical data on to host'

Figure 9


100
271
Line Cable
260
Line Interface
261
Expansion Port
DSP1/FPGA1
DSP2/FPGA2
101
102
200
CPU and Control System
4
LCD Display
9
Keypad
281
Bluetooth I/O control and data
Serial I/O control and data
282
Ethernet I/O control and data
283
Battery Pack
203
Battery Charger unit
202